

March 27, 1997

L. D. Moody, Cumberland Fossil Plant

CUMBERLAND FOSSIL PLANT (CUF) - ANNUAL INSPECTION OF WASTE DISPOSAL AREAS

Attached is a report prepared by B. K. Elder dated March 25, 1997, concerning the inspection of the CUF waste disposal areas for dike stability.

This report includes recommendations for corrective work. I concur with these recommendations.

A handwritten signature in cursive script that reads "R.G. Johnson".

Ralph G. Johnson
Manager, Fossil Engineering
LP 2G-C

KWB:BKE:SRH

Attachments

cc (Attachments):

J. S. Baugh, LP 5H-C

W. D. Hall, LP 1H-C

RIMS, WR 4Q-C

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TENNESSEE VALLEY AUTHORITY
CUMBERLAND FOSSIL PLANT

*ANNUAL INSPECTION OF
WASTE DISPOSAL AREAS*

Prepared by: Keith Elder
Date: March 25, 1997

CUMBERLAND FOSSIL PLANT
NPDES PERMIT NO. TN0005789
ANNUAL ASH POND DIKE INSPECTION
1997

INTRODUCTION

The waste disposal areas at Cumberland Fossil Plant were inspected for dike structural stability on February 27, 1997. The inspection was performed by Jim Huber of TVA Fossil Fuels, Jim Okes of TVA Fossil Fuels, Joe Adams of Cumberland Fossil Plant Yard Operations, and Keith Elder of TVA Fossil Engineering. The previous annual inspection was performed on February 22, 1996.

The results of the annual stability inspection are listed below according to location within the ash disposal area.

WET GYPSUM STACKING AREA

Scrubber sludge (wet gypsum) stacking was continuing in this area. Approximately 90% of the area was covered in 10-15 feet of gypsum. The southwest corner of the area was being inundated with water and material was dropping out to fill this portion to the same elevation as the surrounding stack. Water from this area was still being discharged through a breach in the dike in the southwest corner into the ditch along the southern portion of the dry fly ash stacking area.

The earth starter dike between the exterior dike and the gypsum stack was in good condition. No areas of erosion were noted. A month prior to the inspection, some small boils had been noted in the ditch between the starter dike and the exterior dike on the south side. These were located directly above the transverse drain pipes that relieve water pressure from the stone underdrain. Approximately 18 inches of water was standing in the ditch. The pipes had appeared clogged, so they were cleaned out and the water head behind the gypsum dike was decreased. All areas had stopped boiling at the time of the inspection and the ditch was free of standing water along the southern edge. Several areas of plants were present in the eastern ditch between the starter dike and the outer dike.

The exterior slope of the gypsum dike in this area was in generally good condition. The eastern and southern slopes had been covered with a layer of clay to prevent erosion and dusting. The slopes of the gypsum dike in the southwest corner were steep in some areas and needed to be flattened to at least a 3 to 1 slope.

The exterior slopes of the lower dikes in this area were in good condition with good vegetative cover. Patches of small trees were found in several areas along the dike. Plant personnel were

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working with a contractor to have the trees removed and the slopes mowed. No areas of seepage were found. Three animal burrows were found in the slopes below the lower berm of the eastern dike.

ACTIVE ASH POND AND DRY FLY ASH STACKING AREA

The active ash pond, dry fly ash stacking area, and bottom ash collection area are all located in this area to the west of the wet gypsum stacking area. Dry fly ash was being spread and compacted over the eastern portion of this area. Bottom ash was being sluiced to and was dropping out in the northeast corner of the region. The water from the bottom ash sluicing operation was being discharged to a ditch that ran west along the inside of the northern dike and emptied into the active ash pond in the west side of this area. Water from the gypsum operation was flowing along a ditch inside of the southern dike and was emptying into the active ash pond as well.

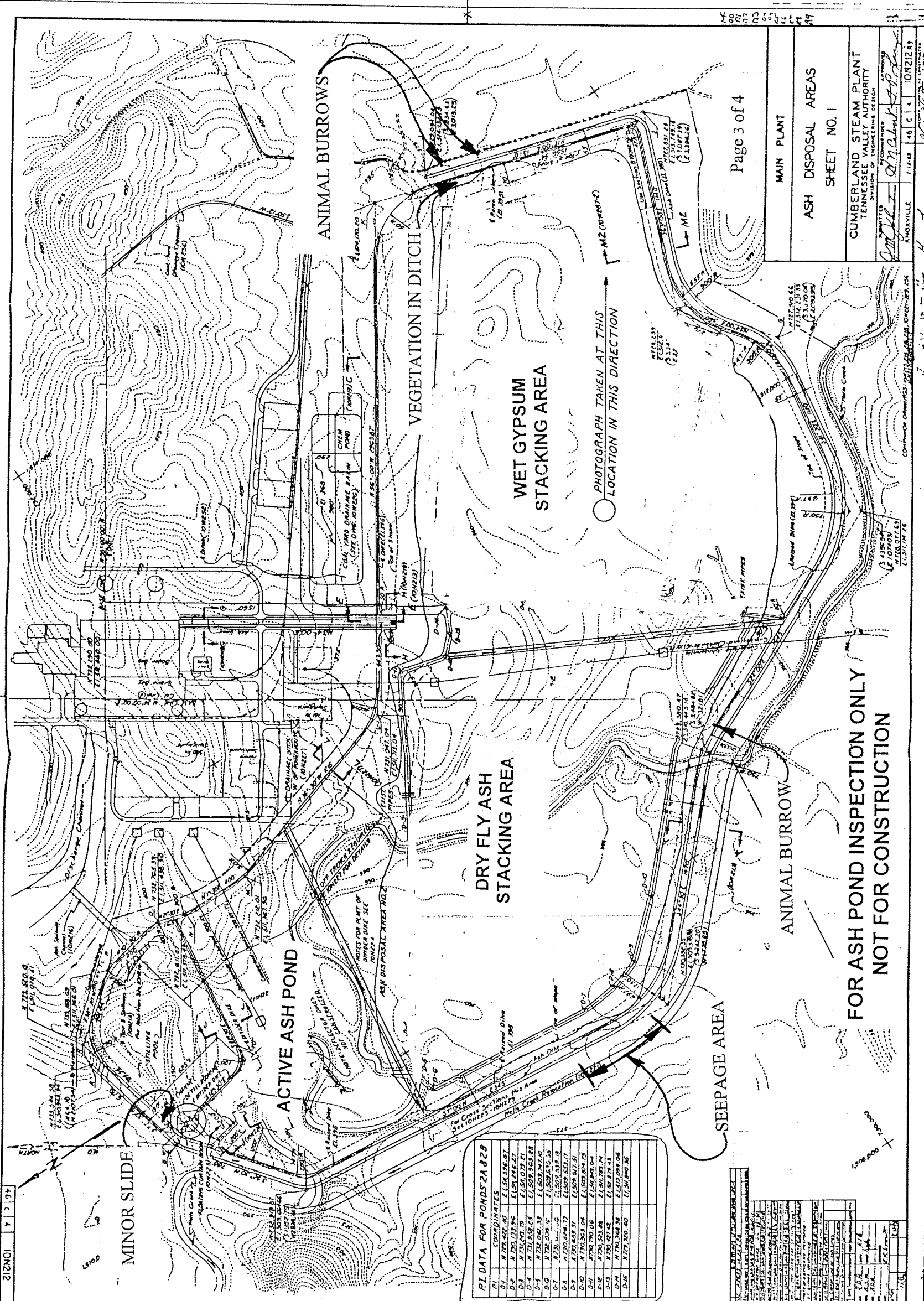
The exterior dike slopes in this area were in good condition. Small patches of trees were found on both the exterior and interior slopes of the dikes. As already stated, plant personnel were working with a contractor to have these removed. An animal burrow was found approximately 15 feet below the top of the dike in the southern portion of this area.

The area of known seepage along the bank of Wells Creek west of the construction bridge was still present. It appears to have slightly increased in intensity since the last inspection. This can be attributed to the elevated water level in the active ash pond. Plant personnel were discussing a scheme to lower the water level in the active pond from its present elevation of 384 feet (MSL) to elevation 380. This will relieve some of the pressure head and should cause a decrease in the seepage.

A small slide was noticed on the inside slope of the southeast corner of the stilling basin. This area should be monitored and repaired if the slide appears to worsen. Otherwise, the interior slopes in this area were in good condition with excellent vegetative cover.

Both the divider dike separating the active pond from the stilling pool and the divider dike separating the active pond from the dry fly ash stacking area were in good condition. No areas of erosion or slips were noted.

The spillways and outlet pipes leading from the stilling pool to the plant discharge channel were in good condition. Discharge from the pipes was clear and free of material.



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MAIN PLANT
ASH DISPOSAL AREAS
SHEET NO. 1
CUMBERLAND STEAM PLANT TENNESSEE VALLEY AUTHORITY DIVISION OF ENGINEERING DESIGN
DATE: 1/19/68
BY: [Signature]
CHECKED: [Signature]
APPROVED: [Signature]
KNOXVILLE 1/19/68 46 C 4 10R212 89

PI DATA FOR PONDS 2A 828

PI	COORDINATES
D-1	N 728,422.40 E 1,571,196.87
D-2	N 726,131.96 E 1,571,442.27
D-3	N 731,491.79 E 1,571,023.21
D-4	N 731,838.23 E 1,569,363.88
D-5	N 728,046.38 E 1,569,747.49
D-6	N 728,094.15 E 1,569,415.35
D-7	N 729,444.05 E 1,569,519.09
D-8	N 730,678.17 E 1,569,531.17
D-9	N 731,639.31 E 1,569,617.31
D-10	N 731,790.06 E 1,569,674.25
D-11	N 731,553.88 E 1,569,894.04
D-12	N 731,472.48 E 1,569,879.43
D-13	N 731,472.48 E 1,569,879.43
D-14	N 729,320.60 E 1,569,099.08
D-15	N 729,320.60 E 1,569,099.08

FOR ASH POND INSPECTION ONLY
NOT FOR CONSTRUCTION

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1997

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. See 18 U.S.C. Section 1001 and 33 U.S.C. Section 1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AGENT

TVA USE ONLY

OTHER AREAS INSPECTED, ACTIONS ON PREVIOUS RECOMMENDATIONS, AND RECOMMENDATIONS FOR CORRECTIVE ACTION

CHEMICAL TREATMENT POND

This pond is located north of the wet gypsum stacking area. Discharge from this pond is pumped to the active ash pond. The southern and eastern borders of this area are formed by a slope that was excavated into existing ground. The northern and western borders are formed by a dike that separates this pond from the coal yard stilling basin.

The interior slopes had an excellent cover of riprap, and the exterior slopes of the dike between this pond and the coal yard drainage basin had a good vegetative cover with no signs of erosion.

COAL YARD DRAINAGE BASIN

This pond is also located north of the wet gypsum stacking area and is adjacent to the chemical treatment pond. It also has no exterior side slopes. Water is pumped from this pond west to the detention pond.

All slopes in this pond were in good condition with adequate vegetative cover. The one area of erosion along the southern slope noted in the last inspection was still present. This area does not pose a structural threat to the pond.

ACTIONS SINCE LAST INSPECTION

The small trees that were found growing on the slopes in the previous inspection were still present, but plant personnel were in the process of hiring a contractor to remove the trees and mow the slopes.

The access road on the dike had been covered with stone in the troubled areas and was in good condition.

RECOMMENDATIONS

Inspect the work of the mowing contractor and insure that all small trees on the slopes are removed. This will provide a measure of safety against root penetration and seepage and will allow for more thorough inspection of the slopes.

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OTHER AREAS INSPECTED, ACTIONS ON PREVIOUS RECOMMENDATIONS,
AND RECOMMENDATIONS FOR CORRECTIVE ACTION

Monitor the minor slide on the interior slope of the stilling basin (See Figure 1). If the area worsens, then backfill the area with earth material and cover with well graded crushed stone or riprap.

Cut the vegetation in the ditch between the gypsum starter dike and the exterior dike on the eastern border of the gypsum stacking area (See Figure 2). Remove the cut material from the ditch to allow for free water flow.

Repair the animal burrows that were found in the exterior slopes to the east and south. Fill these holes with clay material and tamp. Seed and mulch any bare earth areas that are left from the repair operation.

Monitor the slopes in the southwest corner of the gypsum stack. Add material to lessen the slopes if erosion or sliding is noticed. Try to maintain at least a 3:1 slope on the exterior.

Lower the water level in the active ash pond and stilling pool to elevation 380. Several methods of lowering the standpipes in the stilling pool are available. One method would be to drill holes in the interior of the upper segments of the standpipes to allow the water level to drop gradually. Once the water level nears the bottom of the upper segment, then it can be removed. This should bring the elevation of the pond to 380 feet.

A newly formed beaver dam was found in the ditch that drains the swichyard and runs west on the toe of the northern dike slope (See Figure 3). This dam should be cleared to avoid backup of water in the ditch. Monitor the area and continue to remove any future beaver dams.

Continue to monitor the seeps along the bank of Wells Creek near the construction bridge. (See Figure 4). Please report any material movement or increase in seepage to Fossil Engineering immediately.

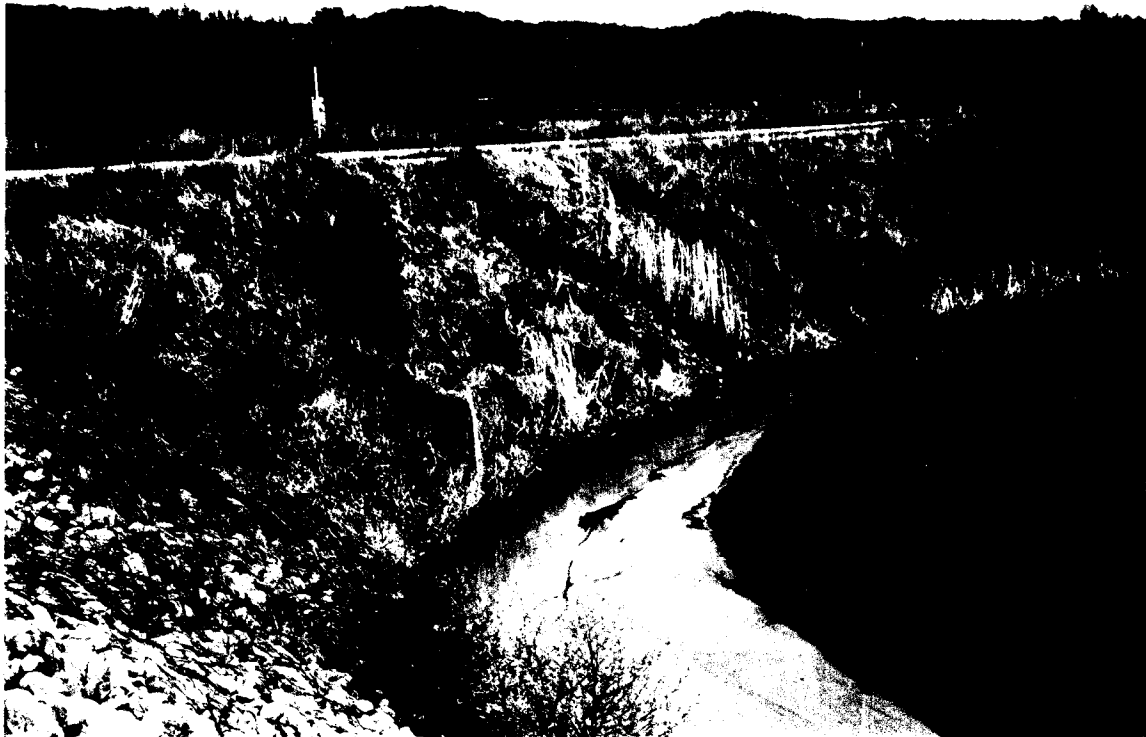


Figure 1. Minor slide on interior slope of stilling basin.



Figure 2. Vegetation in drainage ditch between starter dike and outer dike.



Figure 3. Newly formed beaver dam in switchyard drainage ditch at toe of slope north of active pond.



Figure 4. Seeps at toe of dike looking west from below construction bridge over Wells Creek.